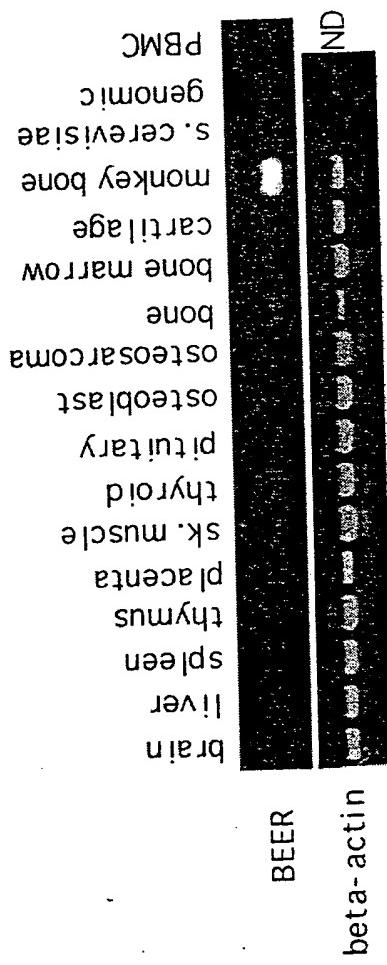


Common Cysteine Backbone

1		50
human_gremlin.pro	-----	
human_cerberus.pro	MHLLLFQLLV LLPLGKTTTRH QDGRQNQSSL SPVLLPRNQR ELPTGNHEEA	
human_dan.pro	-----	
human_beer.pro	-----	
51		100
human_gremlin.pro	----- M SRTAYTVGAL LLLLGTLLPA AEGKKKGSQG	
human_cerberus.pro	EEKPDLFVAV PHLVAT.SPA GEGQRQREKM LSRFGRFWKK PEREMHPSRD	
human_dan.pro	-----	
human_beer.pro	----- MQLPLA LCLVCLLVHT	
101		150
human_gremlin.pro	AI.PPPDKAQ HNDSEQTQSP QQPGSRNRGR GQGRGTAMPQ EEVLESSQEA	
human_cerberus.pro	SDSEPFPPGT QSLIQPID.G MKMEKSPLRE EAKKFWHFM FRKTPASQGV	
human_dan.pro	----- MLRVLVGAVL PAMLLAAPPP	
human_beer.pro	AFRVVEGQGW QAFKNDATEI IPELGEYPEP PPELENNKTM NRAENGGRPP	
151	↓	200
human_gremlin.pro	LHVTERKYLK RDWCKTQPLK QTIEEGCNS RTIINRF.CY GQCNFSFYIPR	
human_cerberus.pro	ILPIKSHEVH WETCRTVPFS QTITHEGCEK VVQNNL.CF GKCGSVHFP.	
human_dan.pro	INKLALFPDK SAWCEAKNIT QIVGHSGCEA KSIQNRA.CL GQCFSYVPN	
human_beer.pro	HHPFETKDVS EYSCRELHFT RYVTDGPCRS AKPVTELVCS GQCGPARLLP	
201	↓	250
human_gremlin.pro	HIRKEEGSFQ SCSF...CKP KKFTTMMVTL NCPELQPPTK K.KRVTRVKQ	
human_cerberus.pro	..GAAQHSHT SCSH...CLP AKFTTMHLPL NCTELSSVIK V...VMLVEE	
human_dan.pro	TFPQSTESLV HCDS...CMP AQSMWEIVTL ECPGHEEVPR VDKLVEKILH	
human_beer.pro	NAIGRGKWWR PSGPDFRCIP DRYRAQRVQL LCPGGEAPRA RKVRLVAS..	
251	↓	300
human_gremlin.pro	CRC.ISIDLD -----	
human_cerberus.pro	CQCKVKTEHE DGHILHAGSQ DSFIPGVSA-----	
human_dan.pro	CSCQACGKEP SHEGLSVVQ GEDGPGSQPG THPHPHPHPH PGGQTPEPED	
human_beer.pro	CKCKRLTRFH NQSELKDFGT EAARPQKGRK PRPRARSABA NQAELENAY-	
301	314	
human_gremlin.pro	-----	
human_cerberus.pro	-----	
human_dan.pro	PPGAPHTEEE GAED	
human_beer.pro	-----	

Figure 1

Fig. 2



Human Beer Gene Expression by RT-PCR

RNA In Situ Hybridization of Mouse Embryo Sections

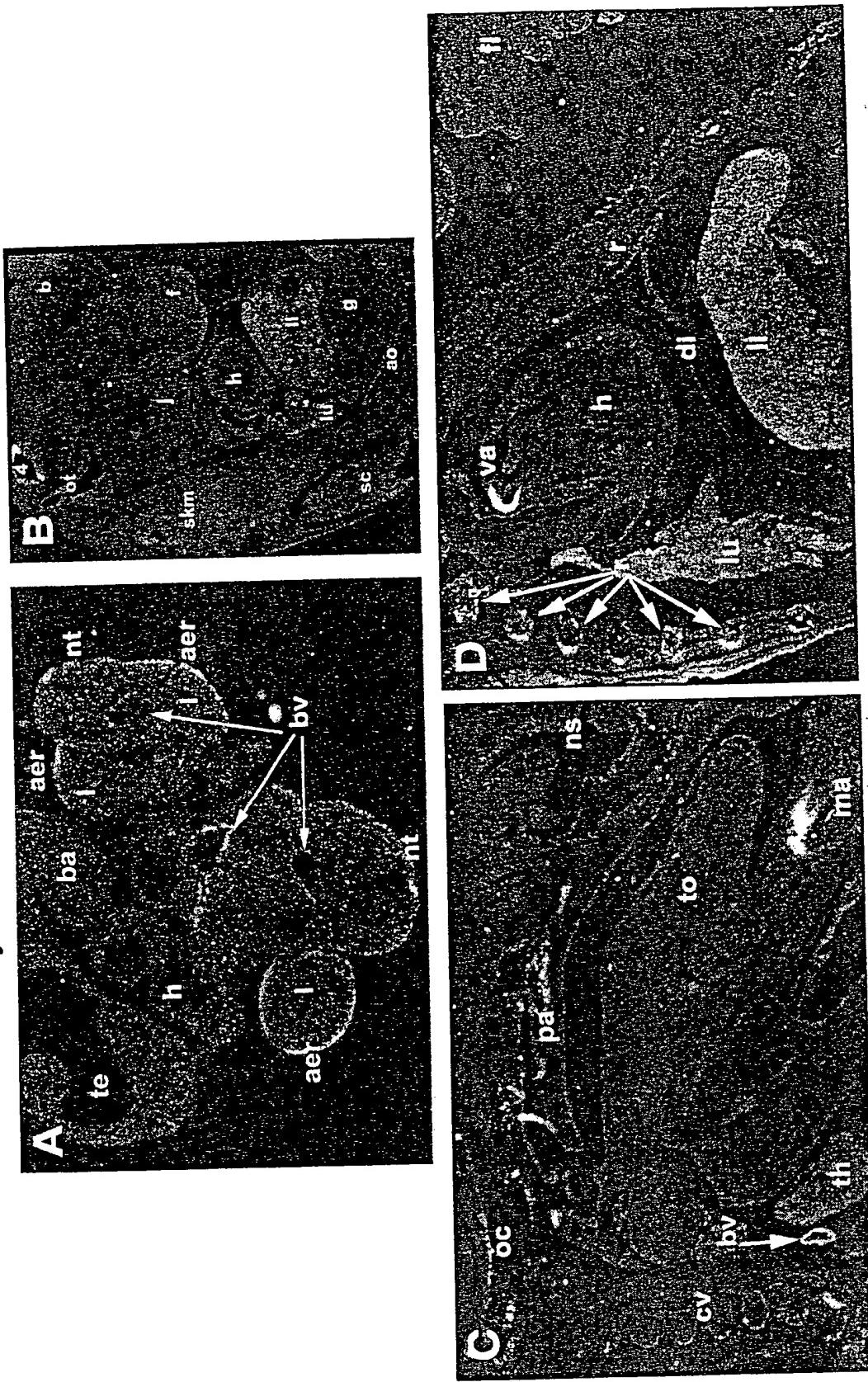


Fig. 3

Antibody Selectivity

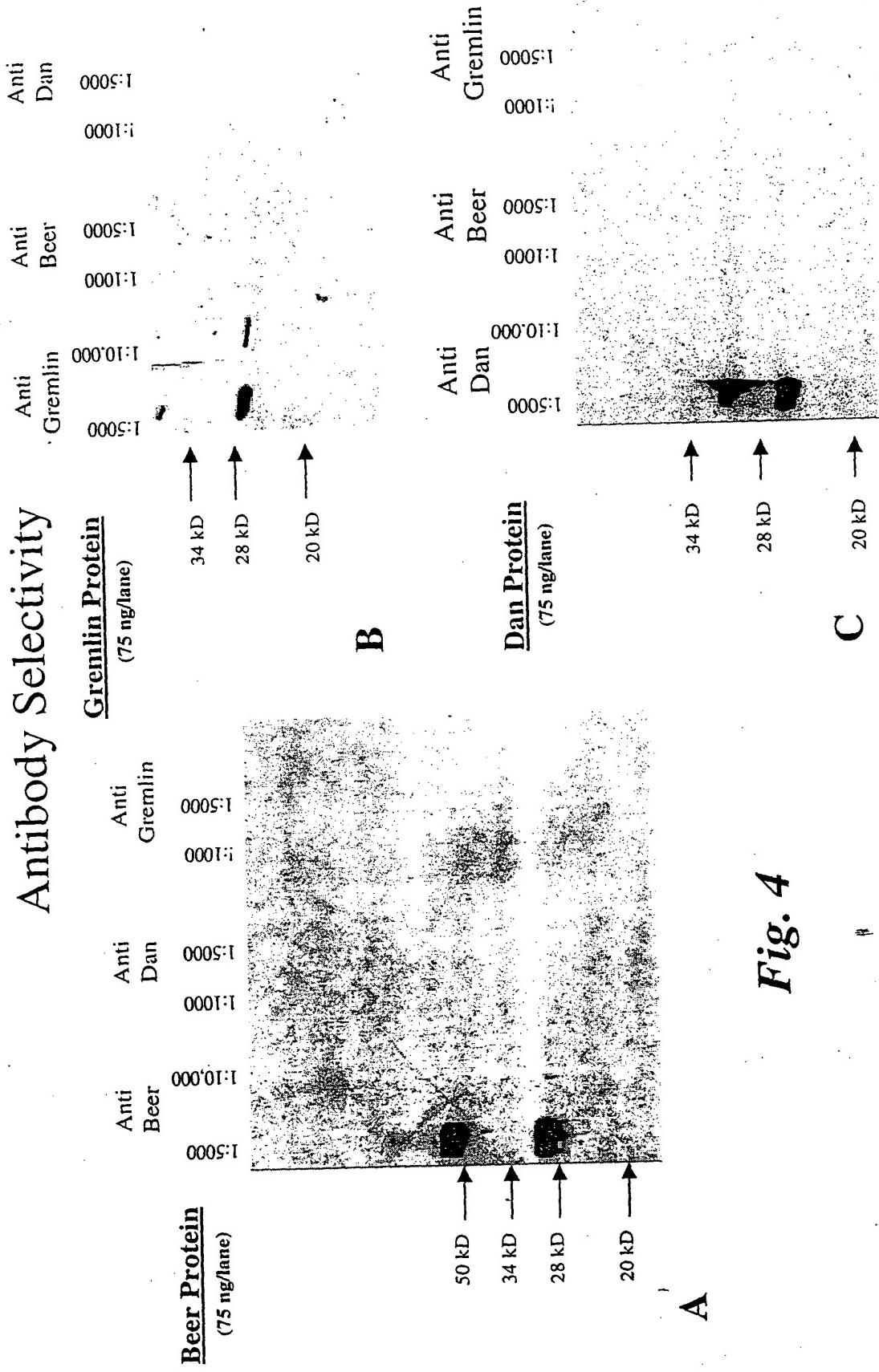
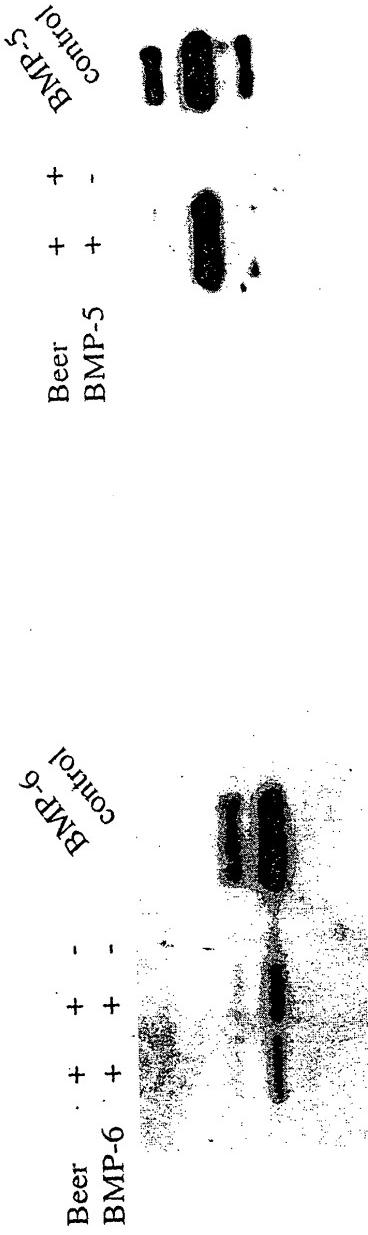


Fig. 4

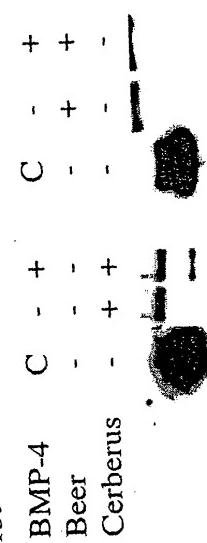
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Evaluation of Beer binding to BMP family members
Anti-FLAG Immunoprecipitation



*Anti-BMP-6 western blot

*Anti-BMP-5 western blot



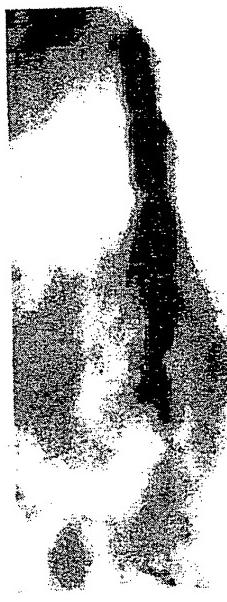
*Anti-BMP-4 western blot

Fig. 5

Beer binds to BMP-5 and BMP-4

BMP-5/Beer Dissociation Constant Characterization

.75 1.5 7.5 15 30 60 120 nM BMP-5



*Anti-FLAG immunoprecipitation *Anti-BMP-5 western blot

Ionic Disruption of BMP-5/ Beer Binding

	BMP-5			
NaCl(mM)	500	150	150	BMP-5
Beer	+	+	-	western
BMP-5	+	+	+	control



* Anti FLAG immunoprecipitation
* Anti BMP-5 western

Fig. 6

Fig. 6: BMP-5/Beer binding analysis. The figure consists of two Western blots. The left blot shows BMP-5 protein bands across various lanes corresponding to different salt concentrations and beer presence. The right blot shows control protein bands across the same lanes. Asterisks indicate anti-FLAG immunoprecipitation and anti-BMP-5 western blotting.